Claims

1. A solar cell module comprising:

a translucent panel;

a back surface protective member;

a plurality of sheet-like solar cell elements that are arranged between the translucent panel and the back surface protective member and electrically connected to one another; and

a filler member for filling spaces between the solar cell elements;

wherein a surface electrode is provided on light receiving surfaces of the solar cell elements, the surface electrode comprising three bus bar electrodes for retrieving light-produced electric current generated at the solar cell elements to the outside and power collecting finger electrodes that are connected to the bus bar electrodes, and

the bus bar electrodes have widths of not less than 0.5 mm and not more than 2 mm, and the finger electrodes have widths of not less than 0.05 mm and not more than 0.1 mm.

2. The solar cell module according to claim 1, wherein the solar cell elements each have a rectangular shape whose one side is not less than 100 mm and not more than 350 mm in length, and another side is not less than 100 mm and not more than 350 mm

in length.

3. The solar cell module according to any of claims 1 and 2, wherein the finger electrodes have widths of not less than 0.06 mm and not more than 0.09 mm.

4. The solar cell module according to any of claims 1 to 3, wherein the finger electrodes are in direct contact with the filler member.

5. The solar cell module according to any of claims 1 to 4, wherein the solar cell elements comprise on the light receiving surface side thereof an opposite conductivity-type diffusion layer having a sheet resistance of not less than 60Ω/□ and not more than 300Ω/□.

6. The solar cell module according to any of claims 1 to 5, wherein the solar cell elements include on the light receiving surface side thereof a great number of fine irregularities having widths and heights of 2 μm or less and an aspect ratio of 0.1-2.

7. The solar cell module according to any of claims 1 to 6, wherein trajectories drawn by moving edge lines of a contact surface between the bus bar electrodes and/or finger electrodes

and the semiconductor region in the direction of an electric current flowing through the bus bar electrodes and/or finger electrodes include in at least a part thereof a region where the direction of a tangent line of the trajectory is not coincident with the electric current flowing direction.

8. The solar cell module according to claim 7, wherein the edge lines of the contact surface between the bus bar electrodes and/or finger electrodes and the semiconductor region include a rugged contour.

9. The solar cell module according to any of claims 7 and 8, wherein when an area of the contact surface between the finger electrodes and the semiconductor region is represented by S_1, an average value of distances between the edge lines of the contact surface within each cut surface formed by cutting at a plurality of cut planes that are generally perpendicular to the direction of electric current flowing through the finger electrode is represented by d_1, and an entire length of the edge lines is represented by L_1, the solar cell elements each include at least one finger electrode where the values S_1,d_1, and L_1 satisfy the following relationship:

$$0.5L_1(S_1 \cdot d_1^{-1}+d_1)^{-1}>1.2$$

10. The solar cell module according to any of claims 7 to 9,

wherein the profile of the edge lines of the contact surface includes at least a part where the edge lines are asymmetric with respect to a center line of the finger electrode forming the contact surface that runs in the same direction as the direction of electric current flowing through the finger electrode.

11. The solar cell module according to any of claims 1 to 8, wherein the contact surface is formed by contact between the bus bar electrodes and the semiconductor region, and with the contact surface being planarly viewed from a direction vertical to the light receiving surface, when an entire length of the edge lines is represented by L_2, an area of the contact surface is represented by S_2, and an area of the entire light receiving surface planarly viewed from a direction vertical to the light receiving surface is represented by S_3, the values L_2, S_2, and S_3 satisfy the following relationships:

$$L_2>5S_3^{1/2}$$

$$0.015<S_2/S_3<0.050$$

12. The solar cell module according to any of claims 1 to 11, wherein when an area of the bus bar electrodes and/or the finger electrodes planarly viewed from a vertical direction on the light receiving surface side is represented by Sa, and a surface area of a region of the light receiving surface of (each of)

the solar cell elements where the surface electrode is provided is represented by Sb, the following relationship is satisfied:

$$1.10 \leq Sb/Sa \leq 2.10$$

13. A photovoltaic power generator for extracting electric power by connecting one or a plurality of the solar cell modules according to any of claims 1 to 11.

14. A solar cell module comprising:

a translucent panel;

a back surface protective member;

a plurality of sheet-like solar cell elements that are arranged between the translucent panel and the back surface protective member and electrically connected to one another;

a plurality of wiring members for electrically interconnecting adjacent solar cell elements of the plurality of the solar cell elements; and

connecting members for electrically interconnecting the plurality of wiring members,

wherein the connecting members are disposed between non-light-receiving surfaces of the solar cell elements and the back surface protective member.

15. The solar cell module according to claim 14, wherein a sum of the areas of the plurality of solar cell elements is not

less than 91.9% and not more than 97.7% of an entire area on the light receiving surface side of the solar cell module.

16. The solar cell module according to any of claims 14 and 15, wherein the shorter distance selected from distances including the shortest distance between an end side of a solar cell element located at the outer most periphery of the plurality of arranged solar cell elements and an end of the perimeter of the solar cell module and the shortest distance between the wiring members or the connecting members and the end of the perimeter of the solar cell module is not less than 5 mm and not more than 11 mm.

17. The solar cell module according to any of claims 14 to 16, wherein the spacing between the plurality of solar cell elements is not less than 70% and not more than 143% of the widths of the wiring members.

18. The solar cell module according to any of claims 14 to 17, wherein all the widths of the wiring members viewed from the light receiving surface side are generally identical.

19. The solar cell module according to any of claims 14 to 18, wherein the widths of the wiring members are not less than 0.8 mm and not more than 2.0 mm.

20. A photovoltaic power generator for extracting electric power by connecting one or a plurality of the solar cell modules according to any of claims 14 to 19.